Act 2 Cleanup Plan
East Area 2 and Former West Production Area

Rohm and Haas Chemicals LLC
Philadelphia Plant
5000 Richmond 19007
Philadelphia, Pennsylvania

Prepared for:
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Project No.: 60533397
Date: January 2018

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Executive Summary

On behalf of Rohm and Haas Chemicals LLC (Rohm and Haas)[1], a wholly-owned subsidiary of The Dow Chemical Company (Dow)[2], AECOM (formerly URS Corporation) has prepared this Cleanup Plan (CUP) for unsaturated soil in portions of the Rohm and Haas Philadelphia Plant (Plant), pursuant to the Pennsylvania Land Recycling and Environmental Remediation Standards Act (Act 2). The Plant is located at 5000 Richmond Street, Philadelphia, Pennsylvania (see Figure 1). The CUP based on information and assessments submitted in the Combined Act 2 Remedial Investigation Report (RIR), Site Specific Human Health Risk Assessment Report for East Area 2A (HHRA), Site Specific Terrestrial Ecological Risk Assessment Report (ERA), and Final Report for Soil (AECOM, 2017) submitted in October 2017 and Addendum (AECOM, 2018).

The CUP addresses unsaturated soils in East Area 2 (East Area 2A, East Area 2B, and East Area 2C) and the former West Production Area (WPA) (Site). Copies of the Act 2 transmittal sheet, municipal and public notices are provided in Appendix A.

The Plant is located along the Delaware River in the northeast Philadelphia community of Bridesburg. Historical production activities included chemical manufacturing, raw material and product storage, wastewater management, and steam and electricity production. No production activities were conducted in East Area 2A.

The intended future use of East Area 2A is an urban greenspace with accompanying use by the public for light recreational activities such as biking, walking, fishing, and open play. The intended future use of East Area 2B, East Area 2C, and the WPA is non-residential, which includes industrial or commercial activities.

The RIR (see AECOM, 2017) presents a detailed description of the Site background, history and iterative horizontal and vertical characterization (soil and soil gas) results. Constituents of concern (COCs) are volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), herbicides-pesticides, and metals. The RIR also includes a discussion of potentially complete exposure pathways and a conceptual remedial options assessment.

The results of the RIR provided the basis for the HHRA for East Area 2A (see AECOM, 2017) and the ERA for the entire Site (see AECOM, 2017). For East Area 2A, the HHRA determined that any potential human health risks from exposure to soils under current and reasonably anticipated future land uses are within acceptable levels when supported by appropriate institutional controls that have been established for the Site. The ERA did not identify any habitats of concern, species of concern, or complete exposure pathways.

Based on the RIR, HHRA, and ERA findings, the potentially complete exposure pathways, consistent with anticipated future use, are summarized below.

[1] The Dow Chemical Company acquired Rohm and Haas on April 1, 2009.
[2] Dow is a wholly-owned subsidiary of DowDuPont Inc.

Site Area	Potentially Complete Exposure Pathways		
	Current and Future Unsaturated Soil	Current Inhabited Building Indoor Air	Future Inhabited Building Indoor Air
East Area 2A	Yes	No Building	Yes
East Areas 2B and 2C	Yes	No Buildings	Yes
WPA	Yes	No Complete Exposure Pathway	Yes

This CUP describes the identification and evaluation of remedial alternatives (removal, treatment, and controls) based on Site conditions for the only potentially complete current exposure pathway – unsaturated soil. Because sampling has demonstrated that indoor air does not exceed appropriate screening levels in the only current building on-Site (Building 13 in the WPA), there is no current potentially complete exposure pathway for indoor air on the Site.

Based on the evaluation, the asphalt-concrete cover that is currently in place was selected as an engineering control for surficial soil (see Figure 2). The cover was selected based on its favorable performance (equal to or better than other technologies) with respect to Act 2 assessment criteria. Key design elements for the cover include pavement, spray coating, and crack filling. The Post-Remediation Care Plan (PRCP) presents the elements that address the inspection and maintenance of the engineering control and institutional controls to maintain the engineering controls into the future.

The Final Report (see AECOM, 2017) describes attainment of a Site Specific Standard for unsaturated soils at the Site under current and currently planned future land uses that is achieved through a combination of risk assessment, engineering and institutional controls, and an Environmental Covenant with appropriate Activity and Use Limitations (AULs), as described in the PRCP (see Figure 3).

As indicated in the RIR, HHRA, ERA and Final Report (AECOM, 2017), Rohm and Haas is committed to addressing groundwater conditions at the Plant on a Site-wide basis through the Act 2 process. The Act 2 reports for groundwater will address on-site and related off-site groundwater conditions (including saturated soils), alternative groundwater remedial options including the remediation of dense non-aqueous liquid (DNAPL) in East Area 2C and potential surface-water and sediment impacts. As required by Act 2, the groundwater analysis also will include an assessment of potential on-site and off-site vapor exposure pathways, potential human health risks, and aquatic and semi-aquatic resources. A prohibition on the use of groundwater will be included in the Environmental Covenant.

1.0 Introduction

On behalf of Rohm and Haas Chemicals LLC (Rohm and Haas)[3], a wholly-owned subsidiary of The Dow Chemical Company (Dow)[4], AECOM (formerly URS Corporation) has prepared this Cleanup Plan (CUP) for unsaturated soil in portions of the Rohm and Haas Philadelphia Plant (Plant) pursuant to the Pennsylvania Land Recycling and Environmental Remediation Standards Act (Act 2). The Plant is located at 5000 Richmond Street, Philadelphia, Pennsylvania (see Figure 1). The CUP based on information and assessments submitted in the Combined Act 2 Remedial Investigation Report (RIR), Site Specific Human Health Risk Assessment Report for East Area 2A (HHRA), Site Specific Terrestrial Ecological Risk Assessment Report (ERA), and Final Report for Soil (AECOM, 2017) submitted in October 2017 and Addendum (AECOM, 2018).

The CUP addresses unsaturated soils in East Area 2 (East Area 2A, East Area 2B, and East Area 2C) and the former West Production Area (WPA) (Site). Copies of the Act 2 transmittal sheet, municipal and public notices are provided in Appendix A.

1.1 Site Setting and Anticipated Future Use

The Plant is located along the Delaware River in the northeast Philadelphia community of Bridesburg. The northern and western boundaries of the Plant (and Site) lie along a portion of the former Frankford Creek channel (Frankford Inlet). The Plant is bounded to the south by the Bridesburg community and to the east by the Delaware River. Historical production activities included chemical manufacturing, raw material and product storage, wastewater management, and steam and electricity production. No production activities were conducted in East Area 2A. The gate house (Building 13) is the only remaining occupied building at the Plant (and Site).

The intended future use of East Area 2A is an urban greenspace with accompanying use by the public for light recreational activities such as biking, walking, fishing, and open play. The intended future use of East Area 2B, East Area 2C, and the WPA is non-residential, which includes industrial or commercial activities. These contemplated future uses are consistent with ongoing planning efforts by the Philadelphia City Planning Commission (PCPC) to identify and promote beneficial land reuse via Brownfields redevelopment (PCPC, 2015).

1.2 Regulatory Setting

The Plant consists of East Area 1, East Area 2 and the WPA. In 2015, Rohm and Haas received a release of liability from the Pennsylvania Department of Environmental Protection (PADEP) for unsaturated soils in East Area 1 by demonstrating attainment of the Act 2 Non-Residential Statewide Health Standard (SHS). The Act 2 Site addressed in this CUP is East Area 2 and the WPA (see Figure 1).

The Final Report (AECOM, 2017) describes attainment of a Site Specific Standards for unsaturated soils at the Site under current and currently planned future land uses that is achieved through a combination of risk assessment, engineering and institutional

[3] The Dow Chemical Company acquired Rohm and Haas on April 1, 2009.
[4] Dow is a wholly-owned subsidiary of DowDuPont Inc.

controls and an Environmental Covenant with appropriate Activity and Use Limitations (AULs), as described in the Post-Remediation Care Plan (PRCP). The areas of the Site where attainment of the SHS and the Site Specific Standards have been demonstrated are shown in Figure 3.

1.3 Site Conditions

The RIR (see AECOM, 2017) presents a detailed description of the Site background, history, and characterization (soil and soil gas) results. Beginning with Plant operational and chemical handling records, an iterative site characterization was completed to fully characterize soil and soil gas to establish the horizontal and vertical extent of soil impacts pursuant to 25 PA Code Chapter 250. Constituents of concern (COCs) are volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), herbicides-pesticides, and metals. The RIR also includes a discussion of potentially complete exposure pathways and a conceptual remedial options assessment. The exposure pathways and conceptual options assessment are summarized in this CUP.

The results of the RIR provided the basis for the HHRA for East Area 2A (see AECOM, 2017) and the terrestrial ERA for the entire Site (see AECOM, 2017). For East Area 2A, the HHRA determined that any potential human health risks from exposure to soils under current and reasonably anticipated future land uses are within acceptable levels when supported by appropriate institutional controls that have been established for the Site. The ERA did not identify any habitats of concern, species of concern, or complete exposure pathways.

Based on the RIR, HHRA, and ERA findings, the potentially complete exposure pathways, consistent with anticipated future use, are summarized below.

Site Area	Potentially Complete Exposure Pathways		
	Current and Future Unsaturated Soil	**Current Inhabited Building Indoor Air**	**Future Inhabited Building Indoor Air**
East Area 2A	Yes	No Building	Yes
East Areas 2B and 2C	Yes	No Buildings	Yes
WPA	Yes	No Complete Exposure Pathway	Yes

Because sampling has demonstrated that indoor air does not exceed appropriate screening levels in the only current building on-Site (Building 13 in the WPA), there is no current potentially complete exposure pathway for indoor air on the Site.

This CUP will evaluate and select an engineering control for the current potentially complete exposure pathway - surficial soil**.** Institutional controls for future potentially complete exposure pathways (surficial soil, subsurface soil and indoor air) are established in the PRCP.

1.4 Report Organization

In accordance with requirements described in the Technical Guidance Manual (TGM) for an Act 2 CUP (PADEP, 2002), this report is organized into the following sections:

- *Section 1 - Introduction* – Presents the organization of the cleanup plan, including regulatory background, signature of the environmental professional who

prepared the CUP, and additional contact information. In addition, site maps and summary of the exposure pathway assessment that were developed from the Remedial Investigation Report and Risk Assessments are provided.

- *Section 2 - Remedial Alternatives Evaluation and Selected Remedial Alternative* – Identifies and describes the remedial alternatives considered for the Site (removal, treatment, and control). Evaluates the effectiveness of the potential selected remedies to achieve the site-specific standard given Site conditions. Proposes a preferred remedial measure and key design elements.
- *Section 3 – Post-Remediation Care Plan* Presents the post-remediation care plan elements that will control the future potential exposure to unsaturated soil and soil vapor, as set forth in the Final Report.
- *Section 4 – References* – Lists the references cited in this report.
- *Appendix A – Transmittal Sheet and Notice Documentation*

1.5 CUP Notices, Signature, and Additional Contacts

1.5.1 CUP Notices

The public notice of the CUP submission was made in the Philadelphia Weekly on December 27 2017 (see Appendix A).

The municipal notice of the CUP submission was made to the City of Philadelphia Public Health Department on January 3, 2018 (see Appendix A).

1.5.2 Signature

In accordance with the Technical Guidance Manual (PADEP, 2002), the signature of the Environmental Consultant responsible for preparing this Report is provided below.

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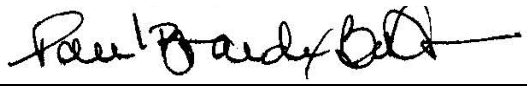

Signature

January 5, 2018

Date

Seal

1.5.3 Additional Contacts

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2.0 Remedial Alternatives Evaluation and Selected Remedial Alternatives

Because the former facilities have been demolished, a range of conceptual remedial options was considered to address the potentially complete current exposure pathway and facilitate future use of the Site. The RIR demonstrated that the only current potentially complete exposure pathway in unsaturated soil is exposure to VOCs, SVOCs, herbicides-pesticides, and metals in surficial soil by site workers and trespassers.

In addition, the HHRA and ERA demonstrated that exposure to soils under current and reasonably anticipated future land uses are within acceptable levels when supported by appropriate institutional controls that have been established for the Site. Therefore, the remedial alternatives analysis will address the direct contact pathway in East Area 2B, East Area 2C, and the WPA.

The remedial alternatives analysis presented in Section 6 of the RIR (see AECOM, 2017) provides the basis for the evaluation below.

2.1 Remedy Evaluation Framework

Act 2 identifies the following factors for consideration of potential remedies:

- Long-term risks and effectiveness
- Reduction of toxicity, mobility or volume (T, M, V)
- Short-term risks
- Ease of Implementation
- Cost
- Incremental health and economic benefits

The TGM provides additional guidance regarding these factors. To attain a Site Specific Standard, remediation may include treatment, removal, or engineering and institutional controls. The CUP discusses the degree of uncertainty associated with the risk assessment of the alternative remedies. Each of the three technology-types was assessed in relation to the six factors above and known Site conditions.

To evaluate the short-term and long-term effectiveness of a remedial alternative, the potential risk associated with implementation of the alternative and the risk associated with exposure to the remediated media were evaluated. The risk characterization associated with short-term effectiveness considered the exposure of workers at the Site and receptors in the vicinity surrounding the Site to migrating media during the implementation of the remedial alternative. The risk characterization associated with long-term effectiveness evaluated whether the remedial alternative may attain the remedial objectives (Site Specific Standard) and whether post-remedial risks could achieve the acceptable levels of risk.

A qualitative assessment of treatment, removal, and controls was performed using professional judgement and knowledge of Site conditions. The constituents consist of VOCs, SVOCs, herbicides-pesticides, and metals.

For the purpose of this assessment, treatment and controls would require a surficial engineering control to eliminate the exposure pathway and prevent migration of COCs to

receptors surrounding the Site. The following discussion considers site-specific conditions such as constituent type and subsurface structures.

2.1.1 Treatment

Treatment consists of the addition, through dry mixing or liquid injection, of a treatment agent or additive to impacted soils.

Long-Term Risks and Effectiveness

Many oxidative treatment agents are effective for both VOCs and SVOCs. Metals treatment is also effective for precipitation or binding of Site constituents to the soil matrix. However, the presence of foundations and subsurface structures at the Site mitigates the effectiveness of treatment by mixing or injection. Many dry additives for metals treatment also increase the soil volume. Hence, treatment for organics and metals would likely be modestly (but not completely) effective due to the subsurface structures. Treatment for metals would require ongoing surface containment (controls) to mitigate potential future exposures.

Reduction of Toxicity, Mobility or Volume

Treatment would reduce the toxicity and volume of VOCs and SVOCs. It would not change constituent mobility. Metals mobility would be reduced; however, toxicity would not be reduced, and the soil volume would be increased due to the volume of reagents required.

Short-Term Risks

Treatment would be implemented Site-wide. Over 50% of the Site would require treatment. Short-term impacts would be significant due to increased vehicle traffic, worker exposure hours, and the proximity of the neighboring community.

Ease of Implementation

Treatment would be difficult due to the presence of subsurface structures and the large volume of reagents required.

Cost

The cost would be high due to the large volume of soil requiring treatment.

Incremental Health and Economic Benefits

Given the shallow groundwater table present at the Site and the known groundwater impacts, treatment of unsaturated soils above the water table would provide only a limited benefit. Historically, Site buildings were either built at ground level or required sumps to prevent groundwater infiltration into basement. Future buildings will be built with vapor controls due to groundwater conditions. Hence, there is a small incremental health benefit because future intrusive activities could be conducted without the need for an OSHA 1910.120-compliant Health and Safety Plan (HASP). There is no economic benefit because future structures will likely be aboveground.

Summary of Treatment

The table below summarizes the assessment.

Remedial Option	Long-term Risks and Effectiveness	Reduction of T, M, V	Short-term Risks	Ease of Implementation	Cost	Incremental Health and Economic Benefits
Treatment	Modest	Organics-Yes Metals-No	Significant	Difficult	High	Small
Shading Color Code: Red: Least Desirable Score, Yellow: Moderate Score, Green: Most Desirable						

2.1.2 Removal

Removal would require the excavation and off-site disposal of impacted soils and subsurface foundations and structures. Shoring would be required along Frankford Inlet and the Delaware River. Backfilling would be required to facilitate future redevelopment.

Long-Term Risks and Effectiveness

Removal would be very effective for both organics and metals. Backfilled soils would comply with clean fill standards.

Reduction of Toxicity, Mobility or Volume

Removal would not reduce the toxicity or volume of the constituents unless landfill regulations required treatment before disposal. Landfilling with an impervious cover and leachate controls would reduce mobility.

Short-Term Risks

Removal would be implemented Site-wide. Over 50 percent of the soils would be removed. Short-term impacts would be significant due to increased vehicle traffic, worker exposure hours, and the proximity of the neighboring community.

Ease of Implementation

Removal would be difficult due to the presence of subsurface structures and shoring along Frankford Inlet and the Delaware River.

Cost Incremental

The cost would be very high due to the large volume of soil requiring removal.

Health and Economic Benefits

Future buildings would be built with vapor controls due to groundwater conditions. However, there is a modest incremental health benefit because future intrusive activities could be conducted without the need for an OSHA 1910.120-compliant HASP. Removal does not provide an economic benefit because future structures will likely be aboveground.

Summary of Assessment

The table below summarizes the assessment.

Remedial Option	Long-term Risks and Effectiveness	Reduction of T, M, V	Short-term Risks	Ease of Implementation	Cost	Incremental Health and Economic Benefits
Removal	Effective	Reduced Mobility	Significant	Difficult	Very High	Modest
Shading Color Code: Red: Least Desirable Score, Yellow: Moderate Score, Green: Most Desirable						

2.1.3 Controls

An asphalt-concrete cover (engineering control) is currently in place across all of the areas where surface soils exceed media specific concentrations (MSCs). These engineering controls require the establishment an Environmental Covenant with Activity and Use Limitations (AULs) described in a PRCP. The controls would allow for future recreational and nonresidential uses by containment of the impacted soils. Development and intrusive activities would be conducted so that potential exposure pathways were incomplete. Future inhabited buildings with enclosed spaces intended for routine human occupation would have vapor controls.

Long-Term Risks and Effectiveness

Controls would be effective for both organics and metals because the exposure pathways are incomplete. These types of controls have proven effective in managing future risks at many properties across Pennsylvania.

Reduction of Toxicity, Mobility or Volume

Controls would not reduce the toxicity or volume of the constituents. The mobility would be reduced by an engineering control.

Short-Term Risks

Controls would be implemented Site-wide; however, short-term impacts are negligible given current Site conditions.

Ease of Implementation

Controls are easily implemented.

Cost

The cost is low to implement and maintain. An asphalt cover is already in place where MSCs for surface soil are exceeded.

Incremental Health and Economic Benefits

There is a modest incremental health benefit. Future buildings will be built with vapor controls due to groundwater conditions. Intrusive activities will be conducted with an OSHA 1910.120-compliant HASP. There is no economic benefit because future structures will likely be aboveground due to elevated levels of groundwater constituents of control (COCs).

Summary of Controls Assessment

The table below summarizes the assessment.

Remedial Option	Long-term Risks and Effectiveness	Reduction of T, M, V	Short-term Risks	Ease of Implementation	Cost	Incremental Health and Economic Benefits
Controls	Effective	Reduced Mobility	Negligible	Easily Implemented	Low	Modest
Shading Color Code: Red: Least Desirable Score, Yellow: Moderate Score, Green: Most Desirable						

2.1.4 Summary

Based on the Act 2 criteria and professional judgement, controls are selected for current potential exposure to unsaturated soil in East Area 2B, East Area 2C, and the WPA. In addition, they most effectively and sustainably facilitate a broad range of potential future uses.

The table below summarizes the assessments.

Remedial Option	Long-term Risks and Effectiveness	Reduction of T, M, V	Short-term Risks	Ease of Implementation	Cost	Incremental Health and Economic Benefits
Treatment	Modest	Organics-Yes Metals-No	Significant	Difficult	High	Small
Removal	Effective	Reduced Mobility	Significant	Difficult	Very High	Modest
Controls	Effective	Reduced Mobility	Negligible	Easily Implemented	Low	Modest
Shading Color Code: Red: Least Desirable Score, Yellow: Moderate Score, Green: Most Desirable						

The assessments address current potential exposures. Potential future exposures are addressed with institutional controls to maintain the engineering control that is described in the PRCP.

In addition to satisfying the Act 2 assessment factors, institutional and engineering controls most effectively and sustainably facilitate a broader range of potential future uses.

2.2 Selected Remedial Option

The existing asphalt and soil cover (see Figure 2) has the most favorable performance (equal to or better than other technologies) with respect to Act 2 criteria to achieve a Non-Residential Site-Specific Standard for unsaturated surface soils. Hence, the existing cover is selected as an engineering control. The small, isolated areas where the cover is clean soil do not require additional engineering controls.

In addition, given its intended future use for recreational purposes and consistent with the plans being developed by the City of Philadelphia, the installation of asphalt as a cover material for East Area 2A was determined by Rohm and Haas to be unnecessary to address current exposure pathways and accommodate the future recreational use of

East Area 2A when supported by appropriate institutional controls that will be established for the Site.

2.2.1 Design Elements

The design objective is to provide a cover in East Area 2B, East Area 2C, and the WPA where surface soil MSCs were exceeded.

The asphalt-concrete cover was installed over several years as Site buildings were demolished. In 2015 and 2016, enhancements were made to the asphalt-concrete cover to accomplish the design objective for the selected remedy (see Figure 2).

Re-paving was performed using conventional technologies where existing asphalt could not be rehabilitated with seal coating or crack filling. Asphalt paving and repaving consisted of approximately 2.5 inches of hot mix asphalt and bedding stone. Where exceedances of screening levels were not bounded to the property boundary, the area of the asphalt-concrete cover was extended as close to the Site boundary as possible.

Seal coating was performed over existing pavement to strengthen the existing asphalt cover using conventional spray equipment. Crack filling was performed within existing asphalt using conventional methods to improve the integrity of the existing cover.

2.3 Conclusion

The CUP identified and evaluated remedial alternatives for the current potentially complete exposure pathway (unsaturated soil) for East Area 2B, East Area 2C, and the WPA in accordance with Act 2. The existing asphalt-concrete cover was the best fit with Act 2 criteria.

The selected remedial measure provides an engineering control that eliminates exposure to soils exceeding non-residential standards. These engineering controls are a part of the Site Specific Standard attainment strategy. The elements of the PRCP for the selected engineering control are presented in Section 3.

As indicated in the RIR, HHRA, ERA and Final Report (AECOM, 2017), Rohm and Haas is committed to addressing groundwater conditions at the Plant on a Site-wide basis through the Act 2 process. The Act 2 reports for groundwater will address on-site and potential related off-site groundwater conditions (including saturated soils), alternative groundwater remedial options including the remediation of dense non-aqueous liquid (DNAPL) in East Area 2C, and potential surface water and sediment impacts. As required by Act 2, the groundwater analysis also will include an assessment of potential on-site and off-site vapor exposure pathways, potential human health risks, and aquatic and semi-aquatic resources. A prohibition on the use of groundwater will be included in the Environmental Covenant.

3.0 Post-Remediation Care Plan (PRCP)

Institutional controls are required to maintain the engineering controls so that the Act 2 Site Specific Standards are maintained into the future.

An Environmental Covenant with AULs to maintain the engineering controls for unsaturated soil will be recorded to document future restrictions, limitations, and requirements. The PRCP elements from the Final Report (AECOM, 2017) that ensure future attainment of the Site Specific Standard are shown below.

3.1 Future Development

Residential development is prohibited throughout the Site. The property owner will review future development plans to ensure that non-residential industrial or commercial use in East Area 2B, East Area 2C, and the WPA, and urban greenspace use in East Area 2A are maintained. Urban greenspace use includes light recreational and support activities, such as biking, walking, fishing, open play, and includes workers conducting groundskeeper maintenance activities or operating light commercial vending (such as bike rentals).

A topographic map of the Site will be prepared in advance of, and revised following, completion of on-Site development that changes the surface elevation contours. The topographic map will be used as a baseline to define intrusive work for purposes of future Site protection and restoration.

When development or intrusive work plans are reviewed and implemented, the property owner will evaluate Site activities to ensure that current and proposed uses are consistent with the AULs in the Environmental Covenant.

Construction activities will comply with all limitations set forth in this PRCP as implemented through the Environmental Covenant. The materials used for any subsurface facilities or structures shall be suitable for their intended purpose, taking into account the subsurface conditions described in the Combined Report.

The creation of “habitats of concern” (e.g., wetlands) as defined in Act 2, or habitats suitable for any “species” of concern” as defined in Act 2, unless approved by PADEP and the Environmental Protection Agency (EPA), will be prohibited.

3.2 Intrusive Activity

Intrusive activities that penetrate the surface (paving or other) potentially may occur during construction, utility maintenance, surface repair, or under other circumstances. An OSHA 1910.120-compliant HASP shall be prepared in advance of any intrusive activities at the Site in order to properly address the potential for exposure to potentially impacted soil, soil gas, vapors, and groundwater.

The HASP will also specify monitoring and record keeping requirements during the intrusive activities. Mitigation measures for potential exposures to on-site workers and the public will be addressed in the HASP. The HASP will include soil management procedures describing measures to prevent intermingling of surface soil with subsurface soil, and for managing any excess soil, stone, or gravel in accordance with state and federal regulations.

Surface repair will be required as part of the scope of work for any intrusive activity. The surface and underlying disturbed soils must be repaired to the pre-construction elevation and extent (or greater) with material of similar (or equally protective) composition.

The property owner will be required to review intrusive activity work plans in advance to ensure that they are consistent with the AULs and to inspect the Site following surface repair to ensure that the repairs comply with the AULs.

3.3 Surface Inspection and Maintenance

Portions of the Site are currently paved or overlain by fill. The surfaces must be maintained in the future. Accordingly, the surfaces will be visually inspected annually to document their integrity. When there is visual (or other) evidence that the surface has been disturbed or penetrated to a depth greater than 6 inches, the area will be repaired to its prior elevation and extent (or greater) with material of similar (or equally protective) composition. An OSHA 1910.120-compliant HASP will be required for all repair and maintenance activities.

When surface repair plans are prepared, and before activities commence, the property owner will review the proposed activities and HASP controls to ensure that the work is consistent with the AULs and will inspect the repaired areas following work to ensure that the repairs are consistent with the AULs.

3.4 Indoor Air

All new, inhabited buildings with enclosed air spaces intended for routine human occupancy will be designed and constructed with vapor control measures. Vapor controls are not required for Building 13 (the only remaining existing building). In addition, the vapor control measures will be inspected and maintained as appropriate to the control measure(s) in place. Maintenance and monitoring records will be kept with the inspection records. In addition, the one residence located across Brill Street at 4929 Salmon Street that is equipped with a vapor mitigation system will be inspected and maintained annually to confirm it is working. The system will be maintained as needed. Inspection and maintenance records will be kept with the on-site records.

3.5 Reporting

If field activities or conditions are found that are determined not to comply with the AULs, the property owner will inform PADEP and EPA of the conditions found and corrective action(s) taken to address the noncompliance within 30 days. The corrective measures may consist of suspension or modification of work activities until the AUL noncompliance is remedied or other measures, as required. Maintenance or repair of building vapor control measure(s) and the surface will be documented but not reported to PADEP or EPA.

In addition, by the end of each January, the current owner of the Property shall submit to the PADEP and EPA written documentation stating whether or not the engineering controls described in the Environmental Covenant are still in place.

3.6 Record Keeping

Documentation of each attainment review, inspection report, and corrective action, including surface repair and vapor control system maintenance, will be documented in a standard form prepared by the property owner. The documents will be kept by the property owner with Site documentation at the property owner's offices.

4.0 References

AECOM. 2018. *Addendum to the Combined Report.* AECOM. January 8, 2018.

AECOM. 2017. *Combined Act 2 Remedial Investigation Report, Site Specific Human Health Risk Assessment Report for East Area 2A, Site Specific Terrestrial Ecological Risk Assessment Report, and Final Report for Soil.* AECOM, Revision 2: October 2017.

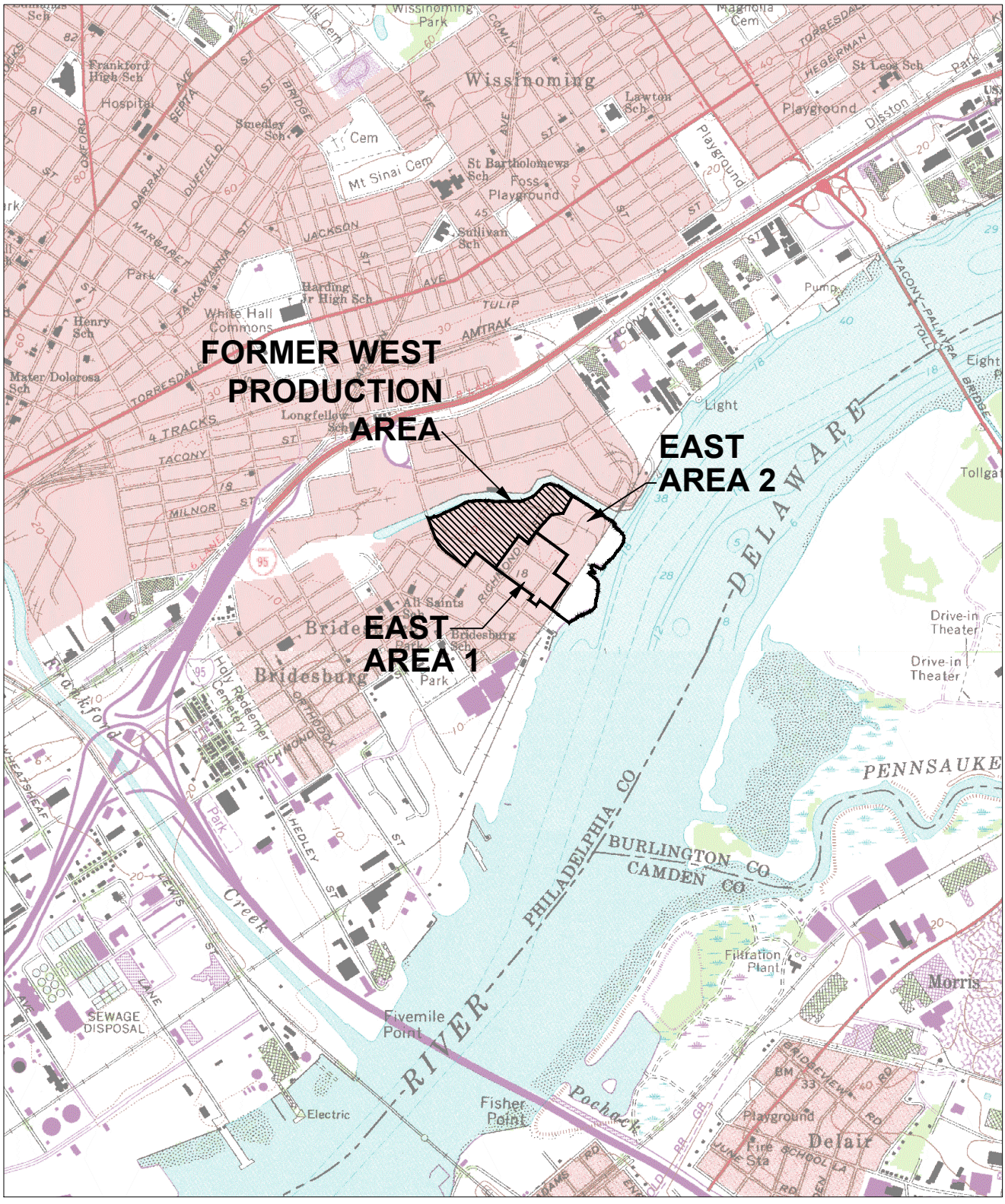
PADEP. 2017. *Land Recycling Program Technical Guidance Manual for Vapor Intrusion into Buildings from Groundwater and Soil under Act 2. PADEP*. January 18, 2017.

PADEP. 2002. *Land Recycling Program Technical Guidance Manual*, June 8, 2002.

PCPC. 2015. *Lower Frankford Creek Watershed. Brownfields Area Wide Plan*. http://www.phila.gov/CityPlanning/plans/PDF/PHILA_AWP_Final Report_Lo Res.pdf. Philadelphia City Planning Commission. August 2015.

Figures

AECOM



PENNSYLVANIA

QUADRANGLE LOCATION

SCALE: 1 INCH=1000 FEET

0 1000 2000

MAP SOURCE

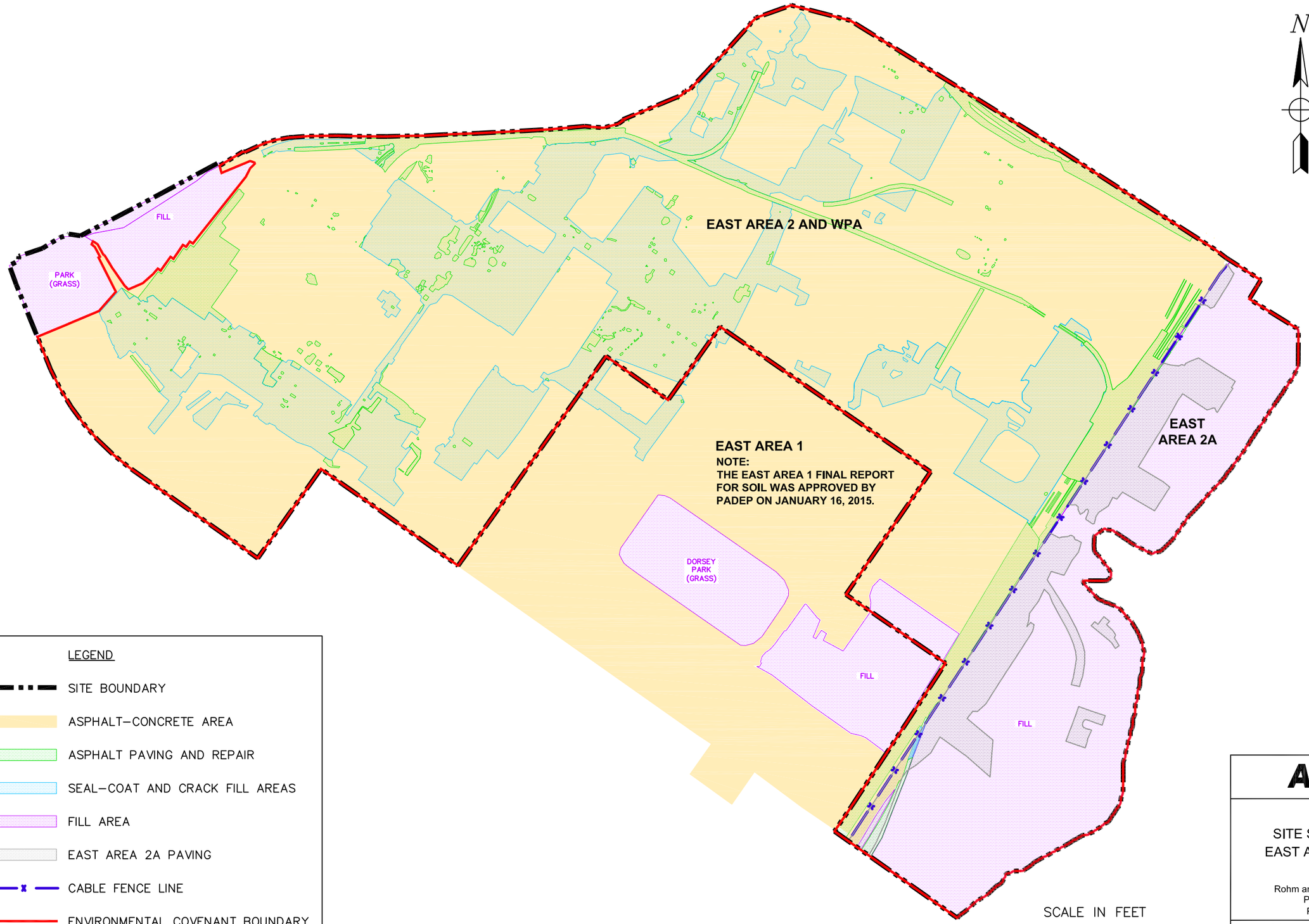
FRANKFORD, PA. & CAMDEN, NJ. QUADS
U.S. GEOLOGICAL SURVEY, 1967
PHOTOREVISED 1983, 1994

Job: 60401705.41570208	
Prepared by: TP	
Checked by: GMA	
Date: 12/13/2016	

REGIONAL LOCATION MAP

ROHM AND HAAS CHEMICALS LLC
PHILADELPHIA PLANT
PHILADELPHIA, PENNSYLVANIA

FIGURE 1



AECOM

FIGURE 2
SITE SURFACE TYPE
EAST AREA 2 AND WPA

Rohm and Haas Chemicals LLC
Philadelphia Plant
Philadelphia, PA

Prepared by: JES	Checked by: BB
Job: 60533397.17010A	Date: 1/3/18

Drawn By & Date/Time: joseph.shell Oct 23, 2017 - 2:30pm
Drawing Location & Name: S:\Projects\Secure\Private-Sector\RohmHass\1_1 Philadelphia Plant Remediation\60444488_Asphalt Paving\CAD\Site Surface Type.dwg

A B C D E F

1 2 3 4

Former West Production Area

East Area 2C

East Area 2B

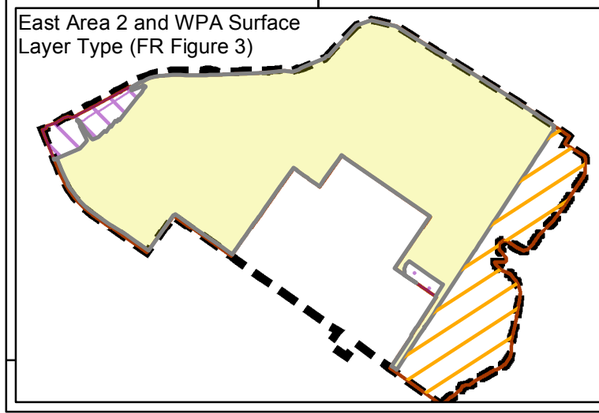
East Area 2A

East Area 1

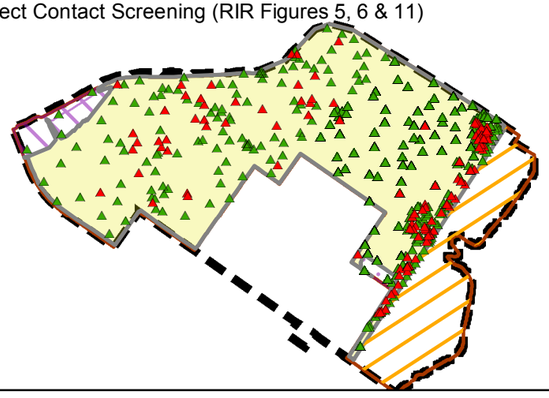
Note-The East Area 1 Final Report for Soil was approved by PADEP on January 16, 2015

BLDG 13

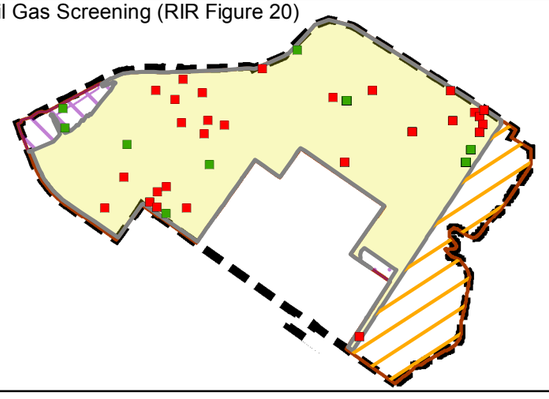
East Area 2 and WPA Surface Layer Type (FR Figure 3)



Direct Contact Screening (RIR Figures 5, 6 & 11)



Soil Gas Screening (RIR Figure 20)



Legend

- Surface Soil Exceeds Non-Residential Direct Contact MSC
- Surface Soil Does Not Exceed Non-Residential Direct Contact MSC
- Soil Gas Exceeds Non-Residential Soil Gas Vapor Intrusion Screening Level
- Soil Gas Does Not Exceed Non-Residential Soil Gas Vapor Intrusion Screening Level
- Project Area Internal Boundary
- Cable Fence Line
- Asphalt-Concrete-Non-Residential Use-Controls Required.
- Unpaved Fill-Non-Residential Use: No Unacceptable Risk-Controls Required.
- Unpaved Fill-Non Residential Use: Meets SHS-No Controls Required.
- Unpaved Fill (East Area 2A) - Recreator Use: No Unacceptable Risk-Controls Required.
- Occupied Building
- Site Boundary
- Plant

Key Map
Not to Scale

NAD 1983 State Plane Pennsylvania South
Projection: Lambert Conformal Conic
Units: Feet

Remedial Investigation Report (RIR) Reference:

1. Figure 5 Former East Area 2B/2C Soil Results Compared to Non-Residential SHS Direct Contact Standard 0-2 feet (AECOM, 2015)
2. Figure 6 Former West Production Area Soil Results Compared to Non-Residential SHS Direct Contact 0-2' Standard (AECOM, 2015)
3. Figure 11 Former East Area 2B 2012 Arsenic/Lead Results Compared to Non-Residential SHS Direct Contact Standard, 0-2 feet (AECOM, 2015)
4. Figure 20 Soil Gas Results Compared to Non-Residential Sub - Slab / Near-Source Soil Gas Site-Specific Standard Vapor Intrusion Screening Values (AECOM, 2017)

N

0 100 200 400 Feet

AECOM

Figure 3
Surface Soil and Soil Gas Screening and Surface Type, East Area 2 and WPA

Rohm and Haas Chemicals LLC
Philadelphia Plant
Philadelphia, PA

Prepared By: BSF	Checked By: BB
Job: 60533397.17010	Date: 1/5/2018

Document Path: S:\Projects\Secure\IMS\ROHMHAAS\PHILA\Projects\2018 Final Report Addendum\Figure 3 Surficial and Subsurface Soil Covenant Extent 11x17.mxd

Appendix A

Transmittal Sheet and Notice Documentation

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Land Recycling Program
Transmittal Sheet for Plan/Report Submission

Instructions: Please provide all requested information in each of the four sections. This transmittal sheet shall accompany any plan/report submitted to the Department under the Land Recycling Program. Proper completion of the Transmittal Sheet will assist Department review and may avoid a finding of plan/report deficiency. The Facility ID number can be obtained from the Department's Environmental Cleanup Program in the region where the site is located.

Section 1 - Site Identification

eFACTS Facility ID 172919

Site Name Philadelphia Plant

Site Address 5000 Richmond Street

Municipality and County Philadelphia, Philadelphia

Section 2 - Remediation Standard . . Plan/Report . . Fees

Identify the remediation standard being pursued and the type of plan/report being submitted. Please note required Department fees follow each type of plan/report.

Check the relevant standard and the type of plan/report being submitted.

☐ Background Standard
Final Report ($250 fee)

☒ Site-Specific Standard

- ☐ Remedial Investigation Report ($250 fee)
- ☐ Risk Assessment Report ($250 fee)
- ☒ Cleanup Plan ($250 fee)
- ☐ Final Report ($500 fee)

☐ Statewide Health Standard
Final Report ($250 fee)

☐ Special Industrial Area

- ☐ Work Plan (no fee)
- ☐ Baseline Environmental Report (no fee)

Ensure your check covers all required fees and is made payable to the **Commonwealth of Pennsylvania**.

Section 3 - Municipal/Public Notice Confirmation

There are two stages in the Land Recycling Program where municipal and public notices are required. Read the information associated with each stage. You will be asked to confirm that information establishing your compliance with these notification requirements has been included with this submission.

☐ Check here if you are planning to meet the Background or Statewide Health Standard and your Final Report has been submitted within 90 days of the release.

Indicate date of release here _____

No further completion of this section is required if your Final Report for these two standards conforms to the 90 day time frame.

Stage 1 - Notice of Intent to Remediate (NIR)

☐ Check here to confirm you have included proof that a copy of your NIR was provided to each municipality where your site is located. Proof will be a copy of your cover letter and a copy of a signed certified mail receipt slip from the municipality.

☒ Check here to confirm a copy of a proof of publication document from a newspaper serving the area of your site has been included with this submission.

☐ Check here to indicate that a Site-Specific Standard or a Special Industrial Area is involved and a municipal request was received for development of a public involvement plan. The plan/report submission shall include municipality and public comments, which were submitted, and your responses to those comments.

Stage 2 - Cleanup Plan/Report Submission

January 3, 2018 Place date here that each municipality was notified of any plan or report submitted under any of the three remediation standards.

The Philadelphia Weekly December 27, 2017 Place the newspaper name and date that your notice of your plan/report submission was published.

Section 4 - Project Contact

On the lines below, place the name, company, and business phone number of the individuals who can be contacted regarding this submission:

Carl Coker	Trevor King
Rohm and Haas Chemicals LLC	AECOM
215-785-7193	610-832-3566

AECOM TECHNOLOGY CORPORATION

NO. 14466611

DATE 22-Dec-2017 **VENDOR NAME** COMMONWEALTH OF PENNSYLVANIA **VENDOR NO** 87590

INVOICE NO.	DESCRIPTION	INVOICE DATE	VOUCHER NO.	DISCOUNT	NET AMOUNT
CK122117250	Land Recycling Program	21-Dec-2017	856332113	0.00	250.00

PLEASE DETACH AND RETAIN THIS STATEMENT AS YOUR RECORD OF PAYMENT 0.00 250.00

FOLD

VERIFY THE AUTHENTICITY OF THIS MULTI-TONE SECURITY DOCUMENT. CHECK BACKGROUND AREA CHANGES COLOR GRADUALLY FROM TOP TO BOTTOM.

AECOM TECHNOLOGY CORPORATION
9400 Amberglen Boulevard, Bldg C
Austin, Texas 78729-1100

WELLS FARGO BANK
115 Hospital Drive
Van Wert, OH 45891

56-382
412

NO. 14466611

CHECK DATE	CHECK NUMBER
22-Dec-2017	14466611

CHECK AMOUNT

PAY: Two Hundred Fifty Dollars And Zero Cents*****

$250.00

TO THE ORDER OF: COMMONWEALTH OF PENNSYLVANIA
2 E MAIN ST
NORRISTOWN, PA 19401-4915
United States

AUTHORIZED SIGNATURES

Details on back. Security Features Included.

⑈014466611⑈ ⑆041203824⑆9600047953⑈

FROM: AECOM TECHNOLOGY CORPORATION

PROOF OF PUBLICATION IN THE PHILADELPHIA WEEKLY

Under Act No. 587, Approved May 16, 1929

STATE OF PENNSYLVANIA
COUNTY OF PHILADELPHIA ss.: Copy of Notice of Publication

James A Bell being duly sworn, deposes and says that the Philadelphia Weekly Newspaper published weekly, in Philadelphia, Pennsylvania, and was established in said county in 1971, since which date said newspaper has been regularly issued in said County and that a copy of the printed notice or publication is attached hereto exactly as the same was printed or published in the regular editions and issues of the said newspapers on the following dates; viz: 27th day of Dec, A.D. 2017.

Affiant further deposed and says that he is an employee of the publisher of said newspaper and has been authorized to verify the foregoing statement and that she is not interested in the subject matter of the aforesaid notice of publication, and that all allegations in the foregoing statement as to time, place and character of publication are true.

.....

Sworn to and subscribed before me this 5 day of Jan, A.D. 2018

.....
NOTARY PUBLIC

My Commission Expires..... March 19 - 2018

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
GYONGYI HARTA, Notary Public
Bensalem Twp., Bucks County
My Commission Expires March 19, 2018

Order Receipt

Broad Street Media, LLC

P.O. Box 1870
Cherry Hill, NJ 08034

Phone: 856-779-3825

Trevor King
AECOM
625 West Ridge Pike
Suite E-100
Conshohocken, PA 19428

Acct #: 00046868
Phone: (610)832-3566
Date: 01/05/2018
Ad #: 00305618
Salesperson: PI05 Ad Taker: PI05

Class: 0424

Ad Notes:

Description	Start	Stop	Ins.	Cost/Day	Extras	Amount
Legal Notice Project #60533397	12/27/2017	12/27/2017	1	228.00	0.00	228.00

Ad Text:

Notification of
Submittal of Cleanup Plan (for site-specific standard)
(Section 304(n)(2)(i))
Notice is hereby given that Rohm and Haas Company is submitting a Cleanup Plan to the Pennsylvania Department of Environmental Protection, Southeast Regional Office for the Philadelphia Plant located at 5000 Richmond Street, Philadelphia, Pennsylvania 19137. Rohm and Haas
Company has indicated in the Cleanup Plan that remediation measures implemented for unsaturated soil will attain compliance with the site-specific cleanup standard established under the Land Recycling and Environmental Remediation Standards Act. This notice

Payment Reference:

Credit Card #8950 $-228.00

Total:	228.00
Tax:	0.00
Net:	228.00
Prepaid:	-228.00
Total Due	**0.00**

philadelphiaweekly

CLASSIFIED LISTINGS
phillyweekly.com

For more information contact: RealEstate@phillyweekly.com

PROFESSIONAL SERVICES

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Help Wanted Sales:
EARN $500 A DAY: Lincoln Heritage Life Insurance Wants Insurance Agents *Leads, No Cold Calls *Commissions Paid Daily *Agency Training *Life License Required. Call 1-888-713-6020

PROFESSIONAL SERVICES

PennSCAN

Give the Gift of Fishing!

Whether with family, friends or alone, fishing is pure fun. A Pennsylvania fishing license is your ticket to a whole year's worth of fun. And, multi-year license options of 3 years, 5 years and 10 years make the fun seem never-ending! Treat yourself to the gift of fishing this holiday season with the purchase of a fishing license, or buy a license gift voucher for that special angler on your holiday list. Buy fishing licenses and gift vouchers at more than 900 agents across the state or online at:

GoneFishingPa.com
Pennsylvania Fish & Boat Commission

NOTICES

Legal Notices

Newspaper Notification of Receipt of Combined Remedial Investigation Report/Cleanup Plan 3222 H Street, Philadelphia, PA

Notice is hereby given that Esperanza Health Center has submitted a Combined Remedial Investigation/Cleanup Plan to the Pennsylvania Department of Environmental Protection, Southeast Regional Office, to demonstrate attainment of the residential site-specific standard for a site located at 3222 H Street, Philadelphia, PA. 9th Street Marketplace Associates, LLC has indicated that the remediation measures proposed will be in compliance with the residential site-specific cleanup standard established under the Land Recycling and Environmental Remediation Standards Act.

This notice is made under the provision of the Land Recycling and Environmental Remediation Standards Act, the Act of May 19, 1995, P.L. #4, No. 2.

Legal Notices

A Fictitious Name has been registered with the Pennsylvania Dept. of State on November 27, 2017 pursuant to the Fictitious Names Act of 1982-295 by Ontellus with principal place of business at 1420 Walnut St. Ste. 1107, Philadelphia, PA 19102.

Name(s) and address(es) of person(s) owning or interested in said Business: Second Image National, LLC, 170 E. Arrow Hwy, San Dimas, CA 91773

Legal Notices

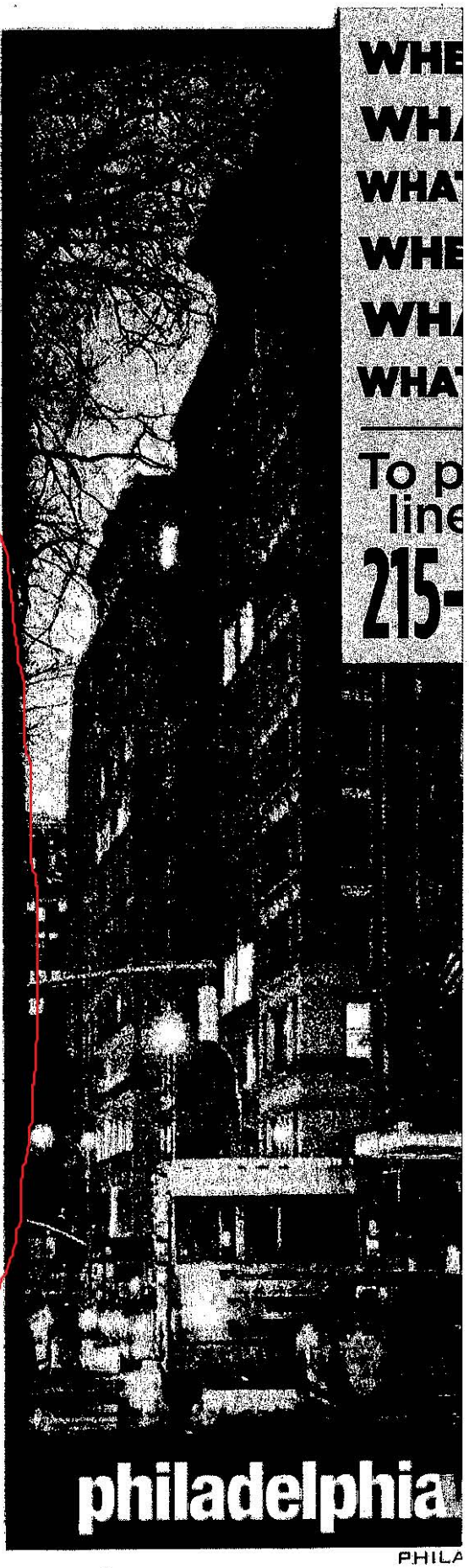
Notification of Submittal of Cleanup Plan (for site-specific standard) (Section 304(n)(2)(i))

Notice is hereby given that Rohm and Haas Company is submitting a Cleanup Plan to the Pennsylvania Department of Environmental Protection, Southeast Regional Office for the Philadelphia Plant located at 5000 Richmond Street, Philadelphia, Pennsylvania 19137. Rohm and Haas Company has indicated in the Cleanup Plan that remediation measures implemented for unsaturated soil will attain compliance with the site-specific cleanup standard established under the Land Recycling and Environmental Remediation Standards Act. This notice is made under the provision of the Land Recycling and Environmental Remediation Standards Act, the Act of May 19, 1995, P.L. #4, No. 2.

PERSONALS

Personals

ATTENTION
If you worked at Westinghouse Waltz Mill, Madison, PA, in the 1980s and/or 1990s, contact Asbestos Investigator Sherry Day (734) 878-5236 Sherry@SLDinvestigations.com



PHILA

AECOM
625 West Ridge Pike
Conshohocken, PA 19428
aecom.com

January 2, 2018

Ms. Leigh Anne Rainford
Program Manager
City of Philadelphia Department of Public Health
321 University Avenue, 2nd Floor
Philadelphia, PA 19104

Act 2 Cleanup Plan
Rohm and Haas Chemicals LLC, Philadelphia Site
5000 Richmond Street, Philadelphia, PA 19137
E-FACTS No. 172919

Dear Ms. Rainford,

Notice is hereby given that Rohm and Haas Company is submitting a Cleanup Plan to the Pennsylvania Department of Environmental Protection, Southeast Regional Office for the Rohm and Haas Philadelphia Plant located at 5000 Richmond Street, Philadelphia, Pennsylvania 19137. Rohm and Haas Company has indicated in the Cleanup Plan that remediation measures implemented for unsaturated soil will attain compliance with the site-specific cleanup standard established under the Land Recycling and Environmental Remediation Standards Act. This notice is made under the provision of the Land Recycling and Environmental Remediation Standards Act, the Act of May 19, 1995, P.L. #4, No. 2. A summary of this notice was published in the *Philadelphia Weekly* on December 27, 2017.

If you have any questions or comments regarding this submittal, please contact me at 610- 832-3566 or Mr. Carl Coker; The Dow Chemical Company, at 215-785-7193.

Sincerely,

Trevor King

Trevor King, PE
Project Manager
AECOM

cc: Mr. Carl Coker – The Dow Chemical Company
Mr. Joel Visser – The Dow Chemical Company
Mr. Marc Gold, Esquire - Manko, Gold, Katcher & Fox, LLP

Butler, Brandt

From: TrackingUpdates@fedex.com
Sent: Wednesday, January 03, 2018 9:38 AM
To: King, Trevor C.
Subject: FedEx Shipment 771122930316 Delivered

Your package has been delivered

Tracking # 771122930316

Ship date:
Tue, 1/2/2018

Trevor King
AECOM
CONSHOHOCKEN, PA
19428
US

Delivered

Delivery date:
Wed, 1/3/2018
9:31 am

Ms. Ms. Leigh Anne Rainford
City of Phila Dept.Public Health
321 University Avenue, 2nd Floor
PHILADELPHIA, PA
19104
US

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	771122930316
Status:	Delivered: 01/03/2018 09:31 AM Signed for By: R.KAPLAN
Reference:	60533397 17010A
Signed for by:	R.KAPLAN
Delivery location:	PHILADELPHIA, PA
Delivered to:	Receptionist/Front Desk
Service type:	FedEx Priority Overnight
Packaging type:	FedEx Envelope
Number of pieces:	1
Weight:	0.50 lb.

Special handling/Services:	Deliver Weekday
Standard transit:	1/3/2018 by 10:30 am

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 8:37 AM CST on 01/03/2018.

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